

Montana Board of Oil and Gas Conservation Environmental Assessment

Operator: Evolution Oil Group, LLC
Well Name/Number: Bolster/Archer #1
Location: NE NW Section 18 T35N R53E
County: Sheridan, MT; Field (or Wildcat) Wildcat

Air Quality

(possible concerns)

Long drilling time: No, about 20-30 days drilling time.

Unusually deep drilling (high horsepower rig): No, triple derrick rig to drill a vertical hole to 8100' TD.

Possible H₂S gas production: Yes slight possibility.

In/near Class I air quality area: No Class I air quality area.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: If productive associated gas to be flared or if a pipeline is run to a sweetening facility then it can be hooked up.

Water Quality

(possible concerns)

Salt/oil based mud: Yes, main hole to be drilled with oil based invert drilling fluids. Surface casing hole will be drilled with freshwater and freshwater mud.

High water table: No high water table anticipated.

Surface drainage leads to live water: No, closest drainage is Big Muddy Creek ephemeral tributary drainage, about 3/8 of a mile to the south from this location.

Water well contamination: Closest stock and domestic water wells are about 5/8 of a mile to the northeast from this location. Depth of these wells range from 35' to 65'. Springs exist about 1/2 of a mile to the east northeast from this location. Water wells are significantly shallower than the surface casing setting depth of 900'. All other wells are 1 mile or further away in any direction. Surface casing will be set to 900' and cemented to surface to protect ground waters.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage: No, Class I stream drainages.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☒ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☒ Other: Freshwater drilling fluids will be land applied. Freshwater cuttings will mixed off on site. Invert based oil well cutting will be hauled to a commercial disposal site. Oil based drilling fluids will be recycled back to the mud company.

Comments: 900' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer. Adequate surface casing and operational BOP equipment will prevent any problems.

Soils/Vegetation/Land Use

(possible concerns)

Steam crossings: None to be crossed. Will be crossing only ephemeral drainages.

High erosion potential: No, location will require a small cut of up to 3.0' and small fill, up to 8.4', required.

Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of wellsite will be reclaimed.

Unusually large wellsite: No, large well site 400'X400'

Damage to improvements: Slight, surface use is grassland.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☒ Other Requires DEQ General Permit for Storm Water Discharge Associated with Construction Activity, under ARM 17.30.1102(28)

Comments: Will use existing State Highway #5. Will construct new access from State Highway #5 into this location, about 2009'. Surface hole cuttings will be mixed off on the surface location.

Freshwater drilling fluids will be land applied with surface owner approval. Oil based drilling fluids will be recycled. Oil based drill cutting will be dried and hauled to a commercial disposal facility. Completion fluids will be removed and hauled to commercial Class II Disposal. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about 1/4 of a mile to the southwest, about 5/8 of a mile to the northeast and about 5/8 of a mile to the south from this location.

Possibility of H2S: Yes possible.

Size of rig/length of drilling time: Triple drilling rig 20 to 30 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other _____

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems. Sufficient distance between location and buildings noise should not be a problem.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Species identified as threatened or endangered are the Whooping Crane and Piping Plover. Candidate species is the Sprague's Pipit. NH Tracker website lists one (1) species of concern: Smooth Greensnake.

Mitigation:

☐ Avoidance (topographic tolerance/exception)

☐ Other agency review (DFWP, federal agencies, DSL)

___ Screening/fencing of pits, drillsite

___ Other: _____

Comments: Private surface grasslands. There maybe species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified.

Mitigation

___ avoidance (topographic tolerance, location exception)

___ other agency review (SHPO, DSL, federal agencies)

___ Other: _____

Comments: Surface location is private grassland. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

___ Substantial effect on tax base

___ Create demand for new governmental services

___ Population increase or relocation

Comments: Wildcat well. No concerns.

Remarks or Special Concerns for this site

To drill a vertical hole to 8100' TD in the Bakken Formation. No concerns.

Summary: Evaluation of Impacts and Cumulative effects

Short term impacts expected, no long term impacts anticipated.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki

(title:) Chief Field Inspector

Date: November 18, 2011

Other Persons Contacted:

Montana Bureau of Mines and Geology, Groundwater Information Center GWIC
website

(Name and Agency)

Sheridan County water wells

(subject discussed)

November 18, 2011

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Sheridan County

(subject discussed)

November 18, 2011

(date)

Montana Natural Heritage Program Website (FWP)

(Name and Agency)

Heritage State Rank= S1, S2, S3, T35N R53E

(subject discussed)

November 18, 2011

(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____